

**MOSER
PATTERSON &
SHERIDAN, LLP**
— ATTORNEYS AT LAW

3040 Post Oak Blvd, Suite 1500
Houston, TX 77056-6582
TEL 713.623.4844
FAX 713.623.4846
WWW.MPSLLP.COM

FACSIMILE COVER SHEET

DATE: April 30, 2004
FILE NO: AMAT/4714.D1/CPI/VCVD/PJS
TO: Examiner Hassanzadeh
FAX NO: 571.273.1435
PHONE NO:
COMPANY:
FROM: Keith M. Tackett
PAGE(S) with cover: 3
ORIGINAL TO FOLLOW? ☐ YES ☐ NO

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6 alternating monolayers of said first compound and said second compound, with
7 said second compound having fluorine atoms associated therewith;

8 controlling a quantity of said fluorine atoms associated with the monolayer
9 of said second compound by introducing into said processing chamber a carrier
10 gas along with said first and second reactive gases, wherein said first and
second compounds are introduced with the same carrier gas; and

11 purging said processing chamber following chemisorption of each of the
12 alternating monolayers by introducing a purge gas, wherein the purge gas and
13 the carrier gas have differing constituents and are not introduced at the same
14 time.

1 23. A method for forming a layer on a substrate disposed in a processing
2 chamber, said method comprising:

3 serially exposing said substrate to first and second reactive gases to
4 deposit monolayers on the substrate, with said first reactive gas having fluorine
5 atoms associated therewith;

6 controlling a quantity of said fluorine atoms associated with the
7 monolayers by introducing into said processing chamber hydrogen (H₂) as a
8 carrier gas along with said first and second reactive gases; and

9 purging said processing chamber following deposition of each of the
10 monolayers by introducing a purge gas, wherein the purge gas and the carrier
11 gas have differing constituents and are not introduced at the same time.